

What is claimed is:

1. A method of aligning clock domains over an asynchronous network between a source controlled by a first clock and a destination controlled by a second clock, comprising:
 - a) estimating a predicted delay for transmitting packets between a source and destination over the network;
 - b) sending time-stamped synchronization packets to said destination, each time-stamped synchronization packet carrying timing information based on a master clock at said source;
 - c) receiving a set of synchronization packets at said destination to create a set of data points;
 - d) weighting said set of data points so that synchronization packets exhibiting a delay further from said predicted delay are accorded less weight than synchronization packets exhibiting a delay closer to said expected delay;
 - e) updating said predicted delay to create a current delay estimate based on said set of data points taking into account the different weighting of said data points;
 - f) continually repeating steps *d* and *e* on new sets of data points created from newly received synchronization packets using the current delay estimate for said expected delay; and
 - g) continually aligning a clock domain at said destination with a clock domain at said source based on the current delay estimate for packets traversing the network between the source and destination.
2. A method as claimed in claim 1, wherein packets having a delay more than a predefined value are accorded a weight of zero and thereby discarded for the purposes of estimating said expected delay.
3. A method as claimed in claim 1, wherein said defined parameters are expected values of the delay.
4. A method as claimed in claim 1, wherein said synchronization packets are multicast from the sending node.
5. A method as claimed in claim 1, wherein said synchronization packets are

broadcast from the sending node.

6. A method as claimed in claim 1, wherein said synchronization packets are time stamped at the sending node.

7. A method as claimed in claim 6, wherein said packets are time stamped at the sending node with the time of actually leaving the sending node.

8. A method of aligning clocks as claimed in claim 6, wherein said synchronization packets are also time stamped on arrival at receiving nodes.

9. A method as claimed in claim 8, wherein a recovered clock at the receiver is used to time stamp the arriving packets.

10. A method as claimed in claim 9, wherein said recovered clock is obtained from the incoming synchronization packets with the aid of a phase-locked loop.

11. A method as claimed in claim 1, wherein said delayed packets are weighted with the aid of a non-linear filter having feedback through a predictor for predicting said expected value.

12. A method as claimed in claim 11, wherein said predictor uses a frequency estimate of the last measurement as an expected value of current data.

13. A method as claimed in claim 12, wherein said predictor has an order of two or more.

14. An apparatus for aligning clock domains over an asynchronous network between a source controlled by a first clock and a destination controlled by a second clock, comprising:

a) a predictor for predicting the delay expected for packets traversing the network between a source and destination;

b) a sender for sending time-stamped synchronization packets to said destination, each time-stamped synchronization packet carrying timing information based on a master clock at said source;

c) a receiver for receiving a set of synchronization packets at said destination to create a set of data points;

d) a non-linear filter for weighting said set of data points so that synchronization packets exhibiting a delay further from said predicted delay are accorded less weight than synchronization packets exhibiting a delay closer to said expected delay;

e) said predictor updating said predicted delay to create a current delay estimate based on said set of data points taking into account the different weighting of said data points;

whereby said clock domain at said destination can be continually aligned with a clock domain at said source based on the current delay estimate for packets traversing the network between the source and destination.

15. An apparatus as claimed in claim 14, wherein packets having a delay more than a predefined value are accorded a weight of zero and thereby discarded for the purposes of estimating said expected delay.

16. An apparatus as claimed in claim 14, wherein said defined parameters are expected values of the delay.

17. An apparatus as claimed in claim 14, wherein said synchronization packets are multicast from the sending node.

18. An apparatus as claimed in claim 14, wherein said synchronization packets are broadcast from the sending node.

19. An apparatus as claimed in claim 14, wherein said synchronization packets are time stamped at the sending node.

20. An apparatus as claimed in claim 19, wherein said packets are time stamped at the sending node with the time of actually leaving the sending node.

21. An apparatus for aligning clocks as claimed in claim 19, wherein said synchronization packets are also time stamped on arrival at receiving nodes.

22. An apparatus as claimed in claim 21, wherein a recovered clock at the receiver is

used to time stamp the arriving packets.

23. An apparatus as claimed in claim 22, wherein said recovered clock is obtained from the incoming synchronization packets with the aid of a phase-locked loop.

24. An apparatus as claimed in claim 14, wherein said delayed packets are weighted with the aid of a non-linear filter having feedback through a predictor for predicting said expected value.

25. An apparatus as claimed in claim 24, wherein said predictor uses a frequency estimate of the last measurement as an expected value of current data.

26. An apparatus as claimed in claim 25, wherein said predictor has an order of two or more.